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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/416,098

10/12/1999

TERESA H. MENG

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05/10/2010

ROSENBERG, KLEIN & LEE

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ELLICOTT CITY, MD 21043

EXAMINER

PUENTE, EVA YI ZHENG

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

05/10/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 09/416,098	<b>Applicant(s)</b> MENG ET AL.	
	<b>Examiner</b> EVA Y. PUENTE	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,8,9,15,18,19,22,23,29,31,34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8,9,15,18,19,22,23,29,31,34 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### *Request for Continued Examination*

1. The request filed on April 30, 2010, for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/416,098 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 4-5, 8-9, 15, 18-19, 22-23, 29, 31 and 34-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claimed subject matter: "wherein the common frequency is a carrier frequency in at least one of the first transceiver units and a sampling frequency in at least one other of the first transceiver units" was not found in the original disclosure and therefore considered as new matter. The original disclosure clearly stated that a first embodiment for digital correction of carrier frequency offsets (page 8, L8-9; Fig. 2); and a second preferred embodiment for digital correction of sampling frequency offset (page 10, L16-17; Fig. 4)". Even though the transmitter can adjust carrier frequency and/or sampling

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frequency (page 18, spec), “and” does not mean together and simultaneously. The application never discloses how carrier frequency and sampling frequency are detected and adjusted together by a plurality of transceiver units.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4-5, 8-9, 15, 18-19, 22-23, 29, 31 and 34-35 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 1, 4-5, 8-9, 15, 18-19, 22-23, 29, 31 and 34-35 fail(s) to correspond in scope with that which applicant(s) regard as the invention. The original disclosure clearly stated that a first embodiment for digital correction of carrier frequency offsets (page 8, L8-9; Fig. 2); and a second preferred embodiment for digital correction of sampling frequency offset (page 10, L16-17; Fig. 4)”. These two different embodiments are improper to combine together in a single claim. Therefore, it is confusing which embodiment of the invention that applicant is intended to claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 4, 5, 8, 15, 18, 19, 22, 34 and 35 are rejected under 35 U.S.C. 102(e) as being unpatentable by Knutson et al (US 6,470,005).

a) Regarding to claims 1 and 15, Knutson et al disclose a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA (TDMA system as shown in Fig. 1), comprising:

a plurality of first transceiver units (handset units 120<sub>1</sub>-120<sub>N</sub> in Fig. 1) operable to communicates in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (base station 110 in Fig. 1) disposed remotely therefrom using a common frequency (inherent in TDMA system with carrier frequency);

means for detecting responsive to a continuous comparison of received and detected signals in each of said first transceiver units a comparative offset between respective common frequency references used locally by said first unit and the second transceiver unit in at least one first signal transmitted by said first transceiver unit and received by the second transceiver unit, wherein the common frequency is a carrier frequency in at least one of the first transceiver units and a sampling frequency in at least one other of the first transceiver units (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16); and

means for adjusting the common frequency in each of said first transceiver units in accordance with the offset detected responsive to the continuous comparison of received and detected signals in at least one second signal to be transmitted by the second transceiver unit and to be received by said first transceiver unit to correct for an

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error in the common frequency reference used locally thereat, so that the effects of the offset to be perceived by said first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of said first transceiver unit (229 in Fig. 2; Col 5, L14-27; abstract).

b) Regarding to claims 4 and 18, Knutson et al disclose wherein the means for detecting the offset in at least one of the first transceiver units includes means for performing a correlation on a digital representation of the first signal so as to lock onto the offset in the carrier frequency (inherent as rotator; Col 5, L14-40).

c) Regarding to claims 5 and 19, Knutson et al disclose wherein the means for adjusting the common frequency in at least one of the first transceiver units includes a means for digitally shifting data in frequency to be transmitted in accordance with the carrier frequency and the offset corresponding thereto (226 in Fig. 2; Col 5, L14-17; rotator inherent as shifting and removing).

d) Regarding to claims 8 and 22, Knutson et al disclose wherein the means for detecting the offset in at least one of the first transceiver units includes means for locking onto the offset in the carrier frequency and for producing an output signal corresponding thereto (inherent as carrier tracking loop (CTL)).

e) Regarding to claim 34, Knutson et al disclose a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA (TDMA system as shown in Fig. 1), the device comprising:

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a plurality of first transceiver units (handset units 120<sub>1</sub>-120<sub>N</sub> in Fig. 1) operable to communicates in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (base station 110 in Fig. 1) disposed remotely therefrom using a common frequency (inherent in TDMA system with carrier frequency);

means for detecting responsive to a continuous comparison of received and detected signals in each of said first transceiver units a comparative offset between respective common frequency references locally by said first transceiver unit and the second transceiver unit in a first signal transmitted by said first transceiver unit and received by the second transceiver unit, wherein the common frequency is a carrier frequency in at least one of the first transceiver units and a sampling frequency in at least one other of the first transceiver units (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16);

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver units (228 and 218 in Fig.2); and

means for adjusting the common frequency in each of said first transceiver units in accordance with the offset detected responsive to the continuous comparison of received and detected signals in at least one second signal to be transmitted by said first transceiver unit and to be received by the second transceiver unit to correct for errors in the common frequency used locally thereat, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial

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frequency lock with the common frequency reference of the second transceiver unit (Col 5, L41-46; 229 in Fig. 2; Col 5, L14-27; abstract).

f) Regarding to claim 35, Knutson et al disclose a device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA (TDMA system as shown in Fig. 1), the device comprising:

a plurality of first transceiver units (handset units 120<sub>1</sub>-120<sub>N</sub> in Fig. 1) operable to communicates in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (base station 110 in Fig. 1) disposed remotely therefrom using a common frequency (inherent in TDMA system with carrier frequency);

means for detecting responsive to a continuous comparison of received and detected signals in each of said first transceiver units a comparative offset between respective common frequency references locally by said first transceiver unit and the second transceiver unit in a first signal transmitted by said first transceiver unit and received by the second transceiver unit, wherein the common frequency is a carrier frequency in at least one of the first transceiver units and a sampling frequency in at least one other of the first transceiver units (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16);

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver units (228 and 218 in Fig.2); and

means for adjusting the common frequency in each of said first transceiver units in accordance with the offset detected responsive to the continuous comparison of received and detected signals in at least one second signal to be transmitted by the



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second transceiver unit and to be received by the said first transceiver unit to correct for errors in the common frequency used locally thereat, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit (229 in Fig. 2; Col 5, L14-27; abstract).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knutson et al (US 6,470,005) in view of Jones et al (US 6,876,675).

a) Regarding to claim 29, Knutson et al disclose a device adapted to be used in a plurality of first transceiver units (handset units 120<sub>1</sub>-120<sub>N</sub> in Fig. 1) that can communicate with a second transceiver unit (base station 110 in Fig. 1) using a common frequency (inherent as TDMA system), the device comprising:

a frequency shift block in at least one of said first transceiver units coupled to received offset information and digital data to be transmitted by the first transceiver unit in a second signal to be received by the second transceiver unit disposed remotely therefrom, the frequency shift block being adapted to digitally shift the digital data in

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frequency in accordance with the common carrier frequency and the carrier frequency offset to correct for an error in the carrier frequency reference used locally at the second transceiver unit, so that the effects of the offset to be perceived by the second transceiver unit will be substantially reduced in preemptive manner for continuous wireless bi-directional communication between the first and second transceiver units for the direct exchange of information (Col 5, L41-46; 227 in Fig. 2; abstract).

Knutson et al. disclose detection of a comparative carrier frequency offset (carrier tracking loop (CTL) is continues comparison; 227 in handset 120 of Fig. 2; Col 5, L14-16), but did not explicitly disclose a frequency lock loop (FLL).

However, Jones et al., disclose an OFDM system comprise a FLL exists in frequency control (228 and 208 in Fig. 2). FLL used to lock the transmitter variable frequency oscillator of the first transceiver to the transmitter variable frequency oscillator of the second transceiver (Col 4, L23-39). Therefore, it is obvious to one of ordinary skill in the art at the time of invention was made to implement the FLL by Jones et al in the TDMA system of Knutson et al. One of ordinary skill in the art would be motivated to do so to synchronize transmitter and receiver parameters, to provide fast and accurate carrier frequency offset detection and correction.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knutson et al (US 6,470,005) in view of Jones et al (US 6,876,675), further in view of Evens et al (US 5,794,11) (Applicant Admitted Prior Art).

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a) Regarding to claim 31, Knutson et al. disclose a device adapted to be used in a plurality of first transceiver units (handset units 120<sub>1</sub>-120<sub>N</sub> in Fig. 1) that can communicate in continuous bidirectional manner for the direct exchange of information with a second transceiver unit (base station 110 in Fig. 1) using a common frequency (inherent as TDMA system).

Knutson et al. did not explicitly disclose a frequency lock loop (FLL), a crystal oscillator, and a variable adjustable device.

However, Jones et al., in the same field of endeavor, disclose an OFDM system comprise a FLL exists in frequency control (228 and 208 in Fig. 2). FLL used to lock the transmitter variable frequency oscillator of the first transceiver to the transmitter variable frequency oscillator of the second transceiver (Col 4, L23-39). Therefore, it is obvious to one of ordinary skill in the art at the time of invention was made to implement the FLL by Jones et al in the handset transmitter of a TDMA system by Knutson et al, to detect a comparative carrier frequency offset in the first signal. By doing so, synchronizing transmitter and receiver parameters, provide fast and accurate carrier frequency offset detection and correction.

Moreover, Evens et al., in the same field of endeavor, disclose a crystal oscillator that supply a reference frequency for modulating (5 in Fig. 2), and a variably adjustable device (constitute as programmable synthesizer; 11 in Fig. 2), where the variable adjusted device being adapted to adjust the reference frequency of the crystal oscillator in accordance with the offset signal to correct for an error (Col 4, L11-22). Therefore, it is obvious to one of ordinary skill in art at the time of invention was made to implement

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the crystal oscillator and variable adjustable device by Evens et al. in the handset transceiver of a TDMA system by Knutson et al. By doing so, measuring and correcting frequency offset. And provide an accurate and efficient TDMA system.

10. Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knutson et al (US 6,470,005) in view of Evens et al (US 5,794,111) (Applicant Admitted Prior Art).

Regarding to claims 9 and 23, Knutson et al disclose all the subject matters above except for the specific teaching of means for adjusting the common frequency in at least one of the first transceiver units includes means for variable adjusting a reference frequency output by a crystal oscillator.

However, Evens et al., in the same field of endeavor, disclose a crystal oscillator that supply a reference frequency for modulating (5 in Fig. 2), and a variably adjustable device (constitute as programmable synthesizer; 11 in Fig. 2), where the variable adjusted device being adapted to adjust the reference frequency of the crystal oscillator in accordance with the offset signal to correct for an error (Col 4, L11-22). Therefore, it is obvious to one of ordinary skill in art at the time of invention was made to implement the crystal oscillator and variable adjustable device by Evens et al. in the handset transceiver of a TDMA system by Knutson et al. By doing so, measuring and correcting frequency offset. And provide an accurate and efficient TDMA system.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Puente whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/EVA Y PUENTE/  
Examiner, Art Unit 2611

May 4, 2010